

GAS SECURITY OF SUPPLY IN SPAIN, A LIBERALISED MARKET

By Jordi Dolader
Commissioner
CNE (Spain)

1- Introduction

The Communication from the European Commission (COM (1999) 571 final "Security of EU gas supply") states that **short-term security of gas supply** includes the ability to maintain continuity of gas supply despite exceptional demand and difficult supply conditions including possible disruptions of gas supply whether of a technical, economic or political nature **and longer-term security of gas supply** is the ability to ensure that future gas demand can be met by a combination of indigenous and imported gas supplies. This requires adequate investments in production, transmission infrastructure and supply diversity and clearly has a geopolitical dimension.

In Europe the gas security of supply has been established in different occasions: The European Gas Directive (98/30/CE) states the freedom for building new facilities, the opening-up of the market in quantitative and qualitative terms in 10 years, the third-party access (TPA) to networks and vertical accountant unbundling. In the Green paper it is stated that EU dependence will increase from 50% to 71% in 2030 and also that EU can influence essentially on the demand side.

In order to complete the European energy market, the Commission has adopted the following measures to guarantee the security of external supplies of natural gas: Communication from the Commission to the European Parliament and the Council entitled "The internal energy market: Coordinated measures on security of energy supplies" (COM(2002) 488 final) and Proposal for a Directive of the European Parliament and of the Council concerning measures to safeguard security of natural gas supply (COM(2002) 488 final).

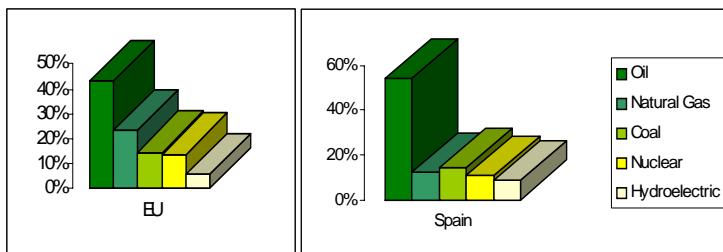
2- Latest developments in the Spanish Gas Regulation

Throughout 2002, three regulative measurements were adopted: In February, a Ministerial Order that establishes the concrete values for retribution, TPA and gas tariffs. In November, another Ministerial Order that establishes the settlement system and in December the Royal Decree 1434/2002, that regulates transport, distribution, commerce, supply and authorizations for new natural gas installations.

The Consumption of Primary Energy in Spain in 2001 remains different as the European average value, as it is showed in picture 1:

► Consumption of Primary Energy in Spain in 2001

CNE



Natural Gas: 24% of EU primary energy supply

Natural Gas: 12% of Spanish primary energy supply

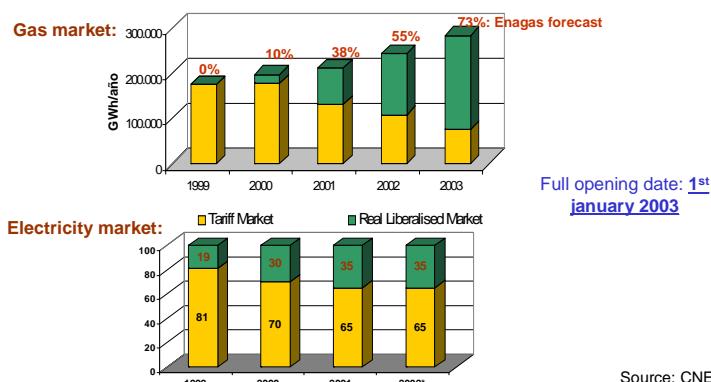
Source: BP Statistical review of world energy, june 2002

1

However, the opening of the market that has been total for all the consumers from the 1º January 2003 is higher on the gas market than in the electrical market, as it is reflected in picture 2:

► Market opening

CNE



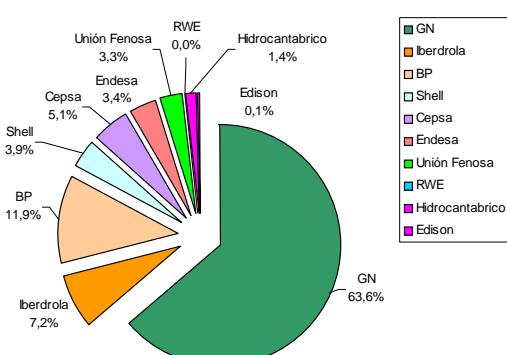
Source: CNE

2

Though the presence of traders in gas and electricity continues being in both cases in hands of the incumbent with a gradual opening towards new players as it is showed in pictures 3 and 4:

► Gas Traders in the Spanish Gas Market, 2002

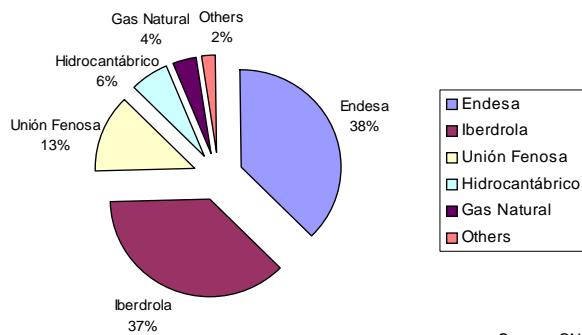
CNE



Source: CNE

3

2



Source: CNE

4

3- Security of supply measures taken in the Spanish Gas Market

3.1- Compulsory network planning

The planning system in the Spanish gas market is regulated by the Hydrocarbons Law 34/98 in the art. 4. Shall be mandatory in nature and the enforceable minimum requirement for basic network gas pipelines, the determination of the global LNG regasification capacity, storage facilities for strategic reserves, the determination of general criteria for setting up facilities to supply retail petroleum products, and shall be for guideline purposes for the rest of infrastructures.

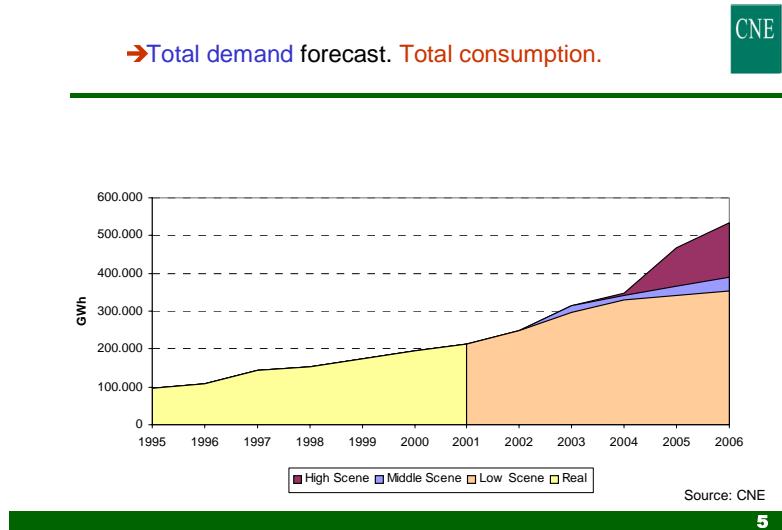
Responsibility of the agents involved in the process: The Government is responsible for exercising planning powers as regards hydrocarbons; the Autonomous Regions are responsible, within the scope of their respective authority and powers, for planning in coordination with the planning carried out by the Government; System Operator, to propose to the Economy Ministry the development of the natural gas Basic Network and the extension of the storage; National Energy Commission to participate through proposals or reports in the process; all agents to provide the System Operator with the necessary information for the proposal of development of the gas Network. In other words, in Spain exists a compulsory planning process (Approval by the Government of the document: "*Planning and development of the transmission electricity and gas networks 2002-2011*").

3.2.- Supervision of supply-demand balance

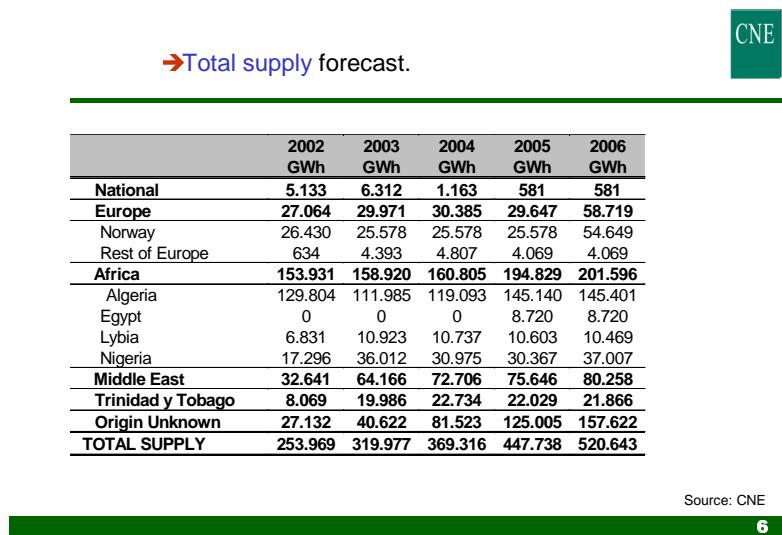
Once realized the Compulsory network planning, the CNE has the function of supervision of supply demand balance. For that purpose defines a natural demand for gas forecasted for 5 years in total demand and peak demand in 3 scenarios: Top - considers the information given by the owners-, Central - considers the CCGT which have the license of the Administration or the access contract to the gas network- and Lower- considers REE (Spanish Electricity Transmission System Operator) forecast of electricity demand-.

The top scenario is the announced by the promoters: 52 groups of 400 MW, 20.800 MW up to final 2005. The central scenario is the one that considers the groups that or have administrative authorization or contract of third-party access to the gas system or both things: 32 groups of 400 MW, 12.800 MW in 2005. The lowest scenario is in view of REE as central: 15 groups, 6.000 MW in 2005. The scenario considered by Enagas (the Spanish Gas Transmission System Operator) is similar to the central: 36 groups. The central scenario of incorporation of groups as more possible scenario for being that of more advanced project, is the one that will determine the reinforcement of the gas network: in term and dimension.

In picture 5 can be observed the total demand that is the sum of the conventional and associated with the combined cycles. The scenario of energy demand is more difficult to predict. It will depend besides the number of plants in service, the number of hours of functioning, which will be in turn dependent on the electrical market: prices, demand, closings groups, hydraulic, special regime, etc. For it the energy scenarios does not correspond directly with those of peak. The dimension of the net is done with the peak. There exists an important jump from the year 2003 to 2004 and an increase of the variability from this year. For a group of 400 MW: Energy demand: 0,5 bcm, peak demand: 65.000m³(n)/h (1 m³= 10 te; kWh= 0,86 te)



The total supply forecasted in picture 6, shows the diversity of origins of the supply of natural gas, essential element in the policy of the security of supply.

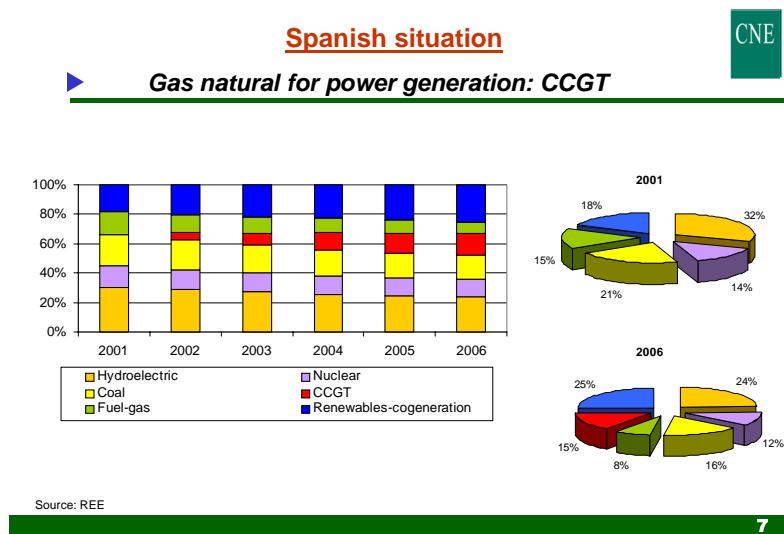


The supervision of the supply-demand balance realized by the CNE finishes with an evaluation of the opportunity to arrange in suitable time the necessary gas infrastructures. Conclusions about supply-demand balance in Spain: The CNE supervises the electricity and gas supply-demand balance and the results are published (*Informe Marco sobre la demanda de energía eléctrica y gas natural, y su cobertura*). The conclusions of 2002 Report were: Gas availability should be expected, transmission capability: a considerable effort in infrastructures should be made in order to deliver gas to customers. If this does not arrive on time, there could be problems in peak consumption.

3.3- The importance of gas security of supply in electricity security of supply

Gas natural for power generation: CCGT: Since 1995, gas-fired power generation has represented every year 50-60% of new investments in EU power generation. The key driver in gas demand is power generation. 2/3 of the increase in gas demand is forecast to come from gas-fired power generation and co-generation. There is an increasing dependence on gas in power generation. Spanish situation 7 CCGT groups of 400MW have been operating in 2002, 5 more groups of 400 MW are expected to be in operation by the end of 2003 and 69 CCGT groups of 400 MW are supposed to be operating in 2006, according with the information given by the promoters.

The Spanish situation is showed in picture 7:



7

3.4- Diversification

Energy in Europe is based mainly in fossil fuels, particularly oil and natural gas. There is a concentration of external supplies in a small number of producer countries or regions. A well functioning single market for gas relies on a sufficient level of secure gas supplies from a diversified range of supply sources.

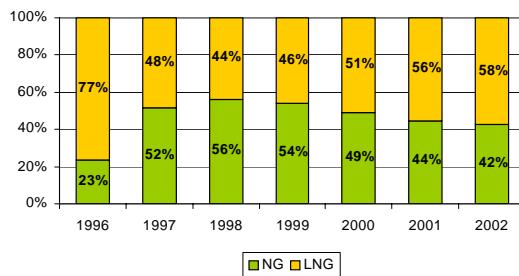
The Spanish situation, Legislation: Hydrocarbons act 34/1998, established a supply diversification on natural gas supplies by origin. Transporters that deliver gas to the system and traders must diversify their provisioning when the proportion of their supplies that come from the same country is over 60 per cent when all their supply provisioning is added together. Algeria is the major supplier, 53% in 2002.

Natural Gas /LNG diversification is showed in picture 8:

► Natural Gas /LNG diversification

LNG plants increase the operation **flexibility** of the gas system as well as the possibility of a greater number of supplies origins.

In 2002, **58%** of gas imported has come as LNG.
This peculiarity of the market will be increased as 3 more regasifications plants will operate in the future.



Source: CNE

8

3.5- Storage

Underground storage serves several functions including: Strategic reserve for security of supply in case of disruption (important in Member States with high dependence on non-EU gas imports), seasonal load balancing to match peak demand, achieving daily balance, transmission support such as mitigating localised capacity constraints or critical pressure thresholds.

Spanish legislation establishes at the *Hydrocarbons act 34/1998* that Transporters that deliver gas to distributors for the supply to tariff-paying customers, natural gas traders and qualified consumers must maintain minimum security stocks corresponding to 35 days of their definite sales/consumption; and at Royal Decree 949/2001, the regasification access tariff includes 5 days LNG storage until 2004 and 10 days from then. The transmission and distribution access tariff includes 5 days of linepack.

In Spain, the average gas stock in 2001: 28,4 days (<35 days), as gas storage is used for seasonal balancing and LNG storage is necessary to operate regasification plants. Gas storage should be increased during the next years.

3.6- Other measures to improve security of supply

The European Internal Market: The removal of barriers of supply-side competition, trade and investments within the internal gas market as well as closer cross-border cooperation and interoperability of gas systems.

Infrastructure: The interlinking of networks play a fundamental role in the flexibility of supplies.

Interruptible contracts: Interruptible contracts give flexibility and can avoid congestions in the network. The CEER defined non-firm capacity as capacity which is not guaranteed in any way by the transmission system operator (TSO), or a form of non firm capacity. Non firm capacity is defined as gas transmission, LNG or storage capacity that can be interrupted by the transmission, LNG or storage undertakings according to the conditions stipulated in the access contracts. CEER considered that non-firm capacity is a crucial issue for the development of a competitive and liquid gas market.

Take or pay contracts: Key for the development of new gas infrastructures and guarantee long term supplies. However, significant elements of the traditional long-term contract will need to be changed.

Liquid gas markets: Gas spot markets throughout the EU should be developed.

Multiplicity of supply-side agents: Reduce the dependency of a single supplier.

Development of Hubs: Improve gas trade.

4- Conclusions

As gas becomes increasingly important in the Spanish overall energy mix, it also becomes more important for the Spanish's overall energy security and hence, the responsibility of the gas sector increases.

Storages and diversification have a key role in the short and long term security of supply.

Care should be taken to ensure that security of gas supply policies and obligations of market participants do not constrain the development of competition.

Promotion and stimulation of investments should be ensured for the gas sector in order to cover the growing demand.